



## SEQUENCE LISTING

<110> WEEKS, J. TROY  
ROMMENS, CAIUS

<120> REFINED PLANT TRANSFORMATION

<130> 058951-0172

<140> 10/667,145

<141> 2003-09-22

<150> 10/392,301

<151> 2003-03-20

<150> 60/377,597

<151> 2002-05-06

<150> 60/365,527

<151> 2002-03-20

<160> 76

<170> PatentIn Ver. 3.2

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<213> Solanum tuberosum

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<213> Solanum tuberosum

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 <213> *Saccharomyces cerevisiae*

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 aaataagcga atttcttatg atttatgatt tttattatta aataagttat aaaaaaata 180  
 agtgtatata aatttttaaag tgactcttag gttttaaaac gaaaattctt attcttgagt 240  
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<210> 5  
 <211> 359  
 <212> DNA  
 <213> *Solanum tuberosum*

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 <212> DNA  
 <213> *Oryza sativa*

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<210> 7  
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 <212> DNA  
 <213> *Solanum tuberosum*

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<210> 8  
 <211> 1026  
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 ggtacactac acctcattat tacacgtgtc ctcatataat tggttaacc tatgaggcgg 960  
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 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
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<210> 10  
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 <212> DNA  
 <213> Zea mays

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 aaaatagaat aaaataaagt gactaaaaat taaacaaata ccctttaaga aattaaaaaa 240

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<211> 1425

<212> DNA

<213> Saccharum officinarum

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<211> 729

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic  
resistance gene nucleotide sequence

<400> 12

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<210> 13  
 <211> 242  
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 <213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic  
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Ala	Lys	Thr	Leu	Asp	Tyr	Ala	Lys	Ala	Val	Leu	His	Pro	Glu	Thr	Phe	50	55	60	
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Gln	Phe	Pro	Glu	Gln	Ala	Ala	Ala	Leu	Ser	Pro	Ile	Thr	Trp	Ala	Leu	85	90	95	
Thr	Cys	Leu	Leu	His	Asp	Leu	Gly	Thr	Ala	Glu	Glu	Asn	Leu	Thr	Ala	100	105	110	
Thr	Arg	Met	Ser	Phe	Asp	Ile	Tyr	Gly	Gly	Ile	Lys	Ala	Leu	Ser	Val	115	120	125	
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Ala	Ile	Ile	Arg	His	Glu	Asp	Met	Gly	Val	Asp	Gly	Thr	Ile	Thr	Tyr	145	150	155	160
Ile	Gly	Gln	Leu	Ile	Gln	Leu	Ala	Thr	Thr	Tyr	Asp	Asn	Thr	Gly	Phe	165	170	175	
His	Pro	His	Val	Lys	Asp	Phe	Gly	Lys	Leu	Val	His	Asp	Glu	Thr	Arg	180	185	190	
Ala	Gln	Ile	Asn	Thr	Ala	Tyr	Pro	Arg	Leu	Lys	Trp	Cys	Thr	Phe	Phe	195	200	205	
Ser	Gly	Val	Ile	Arg	Lys	Glu	Glu	Thr	Ile	Lys	Pro	Trp	Cys	His	Ser	210	215	220	
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<210> 14  
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 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
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<210> 15  
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 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 resistance gene nucleotide sequence

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<210> 16  
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 <213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 16

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25

<210> 17

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 17

tggcaggata tatggtactg taatt

25

<210> 18

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>

<221> modified\_base

<222> (16)

<223> a, c, g, t, unknown, or other

<400> 18

ygryaggata tatwsnvbkg taawy

25

<210> 19

<211> 25

<212> DNA

<213> Solanum tuberosum

<400> 19

tgacaggata tatggtaatg taaac

25

<210> 20

<211> 25

<212> DNA

<213> Solanum tuberosum

<400> 20

tggcaggata tataccgatg taaac

25





<210> 22  
 <211> 259  
 <212> PRT  
 <213> Aspergillus sp.

<400> 22  
 Met Cys Gln Asn Glu Val Glu Val Asn Gly Trp Thr Ser Met Pro Ala  
   1                  5                  10                  15  
 Asp Ala Gly Ala Ile Phe Asp Gly Gly Pro Phe Ile Asn Val Pro Glu  
                   20                  25                  30  
 Ala Leu Ser Ile Glu Glu Ile Lys Phe Pro Val Asp Asp Pro Ile Val  
                   35                  40                  45  
 Glu Lys Thr Met Arg Tyr Ala Lys Ala Ala Leu Pro Thr Glu Thr Phe  
                   50                  55                  60  
 Asn His Ser Met Arg Val Tyr Tyr Tyr Gly Met Gln Asp Cys Ala Ser  
   65                  70                  75                  80  
 His Gly Val Leu Ile Asn Arg Ser Gln Ala Leu Gly Met Ala Ile Thr  
                   85                  90                  95  
 Lys Gln Gln Phe Pro Lys Gln Ala Ser Ala Leu Ser Pro Ser Thr Trp  
                   100                  105                  110  
 Ala Leu Thr Cys Leu Leu His Asp Ile Gly Thr Ser Asp His Asn Leu  
                   115                  120                  125  
 Ala Ala Thr Arg Met Ser Phe Asp Ile Tyr Gly Gly Ile Lys Ala Leu  
                   130                  135                  140  
 Glu Val Leu Lys Gly Phe Gly Ala Thr Ser Asp Gln Ala Glu Ala Val  
   145                  150                  155                  160  
 Ala Glu Ala Ile Ile Arg His Gln Asp Leu Gly Val His Gly Thr Ile  
                   165                  170                  175  
 Thr Tyr Ile Gly Gln Leu Ile Gln Leu Ala Thr Ile Tyr Asp Asn Val  
                   180                  185                  190  
 Gly Ala His Pro Tyr Val Lys Asp Phe Gly Glu Leu Ile His Asp Thr  
                   195                  200                  205  
 Thr Arg Ser Gln Val His Glu Ala His Pro Pro Gly Glu Trp Arg Thr  
                   210                  215                  220  
 Phe Phe Ser Gly Val Ile Gln Lys Glu Gln Ala Ile Lys Pro Trp Cys  
   225                  230                  235                  240  
 His Thr Lys Lys Met Val Asn Val Leu Arg Lys Gly Ser Arg His Pro  
                   245                  250                  255  
 Asp Gly Gln

<210> 23  
 <211> 225  
 <212> PRT  
 <213> *Saccharomyces cerevisiae*

<400> 23  
 Met Ser Gln Tyr Gly Phe Val Arg Val Pro Arg Glu Val Glu Lys Ala  
   1                  5                  10                  15  
 Ile Pro Val Val Asn Ala Pro Arg Pro Arg Ala Val Val Pro Pro Pro  
                   20                  25                  30  
 Asn Ser Glu Thr Ala Arg Leu Val Arg Glu Tyr Ala Ala Lys Glu Leu  
           35                  40                  45  
 Thr Ala Pro Val Leu Asn His Ser Leu Arg Val Phe Gln Tyr Ser Val  
   50                  55                  60  
 Ala Ile Ile Arg Asp Gln Phe Pro Ala Trp Asp Leu Asp Gln Glu Val  
   65                  70                  75                  80  
 Leu Tyr Val Thr Cys Leu Leu His Asp Ile Ala Thr Thr Asp Lys Asn  
                   85                  90                  95  
 Met Arg Ala Thr Lys Met Ser Phe Glu Tyr Tyr Gly Gly Ile Leu Ser  
                   100                  105                  110  
 Arg Glu Leu Val Phe Asn Ala Thr Gly Gly Asn Gln Asp Tyr Ala Asp  
           115                  120                  125  
 Ala Val Thr Glu Ala Ile Ile Arg His Gln Asp Leu Thr Gly Thr Gly  
   130                  135                  140  
 Tyr Ile Thr Thr Leu Gly Leu Ile Leu Gln Ile Ala Thr Thr Leu Asp  
 145                  150                  155                  160  
 Asn Val Gly Ser Asn Thr Asp Leu Ile His Ile Asp Thr Val Ser Ala  
                   165                  170                  175  
 Ile Asn Glu Gln Phe Pro Arg Leu His Trp Leu Ser Cys Phe Ala Thr  
           180                  185                  190  
 Val Val Asp Thr Glu Asn Ser Arg Lys Pro Trp Gly His Thr Ser Ser  
   195                  200                  205  
 Leu Gly Asp Asp Phe Ser Lys Lys Val Ile Cys Asn Thr Phe Gly Tyr  
   210                  215                  220  
 Asn  
 225

<210> 24  
 <211> 274  
 <212> DNA  
 <213> *Saccharum officinarum*

<400> 24

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aagcaaacgg tatagcaacg gtgttaacct gatctagtga tctcttgcaa tccttaacgg 60
ccacctaccg caggtagcaa acggcggtccc cctcctcgat atctccgcgg cgacctctgg 120
ctttttccgc ggaattgcgc ggtggggacg gattccacaa ccgcgacgca accgcctctc 180
gccgctgggc cccacaccgc tcggtgccgt agcctcacgg gactctttct cctcctccc 240
ccgttataaa ttggcttcat cccctccttg cctc 274
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<210> 25

<211> 240

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic promoter sequence

<400> 25

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aagcaaaggg tatggcaact gtgtcacgcg ccttcgctgc gtgttaacgg ccaccaaccg 60
caggtagcaa acggcggtgca ccttcccgag atctccacag cgaggctctgg ctttttccgc 120
cttcccggaa accgcggtgg ttccagcgtg gcggattccc cctcccacca cccaaccgcc 180
ataaatacca gccccacct cactctcttt gcatatccat ccaaattcca gtccccaatc 240
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<210> 26

<211> 25

<212> DNA

<213> Agrobacterium sp.

<400> 26

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tgacaggata tattggcggg taaac 25
```

<210> 27

<211> 25

<212> DNA

<213> Agrobacterium sp.

<400> 27

```
tggcaggata tattgtggtg taaac 25
```

<210> 28

<211> 25

<212> DNA

<213> Agrobacterium sp.

<400> 28

```
tggcaggata tataccgttg taatt 25
```

<210> 29

<211> 25

<212> DNA

<213> Agrobacterium sp.

<400> 29

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cggcaggata tattcaattg taatt 25
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<210> 30  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 30  
tctagatgtc acagtacgga tttgtaag 28

<210> 31  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 31  
ggtcacctca ctgcccatca gggtgccggc ttc 33

<210> 32  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 32  
atgtgtcaga acgaagttga agt 23

<210> 33  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 33  
tctagatgtg tcagaacgaa gttgaag 27

<210> 34  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 34

gtataactcgc atggagtgat tg

22

<210> 35

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 35

gtataccact acggaatggc tatcacaaag cagcag

36

<210> 36

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 36

ctgcagtcac tgcccatcag gggtg

25

<210> 37

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 37

ccaacggatg gactgccgtt ccagtc

26

<210> 38

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 38  
catggagtga ttgtaggttt cgggac 26

<210> 39  
<211> 93  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 39  
tctagaatgt gccaaaacga ggtggagggtg aacggctgga cctccatgcc agccaacgcc 60  
ggcgccatct tcggcgacaa gccattcatc aac 93

<210> 40  
<211> 100  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 40  
gtagtcgagg gtcttggcca ccaactgggtc gtcgaatggg aacttgatct cctcgatgga 60  
gagggccctt ggctcgttga tgaatggctt gtcgccgaag 100

<210> 41  
<211> 99  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 41  
gtgggtggcca agaccctcga ctacgccaaag gccgtgctcc acccagagac cttcaaccac 60  
tccatgcgcg tgtaccacta cggcatggcc atcaccaag 99

<210> 42  
<211> 96  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 42  
gaggtcgtgg aggaggcagg tgagggccca ggtgattggg gagagggcgg cggcttgctc 60  
tggaattgt tgcttggtga tggccatgcc gtagtg 96

<210> 43  
 <211> 99  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 43  
 ctcacctgcc tcctccacga cctcggcacc gccgaggaga acctcacgc caccgcatg 60  
 tccttcgaca tctacggcgg catcaaggcc ctctccgtg 99

<210> 44  
 <211> 78  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 44  
 gcctcggcgg cggcctcggc ttggtccacg gtggcgccga agtccttgag cacggagagg 60  
 gccttgatgc cgccgtag 78

<210> 45  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 45  
 tctagaatgt gccaaaacga ggtg 24

<210> 46  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 46  
 gcctcggcgg cggcctcggc ttggtc 26



<210> 47  
 <211> 98  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 47  
 gccgccgagg ccatcatccg ccacgaggac atgggcgtgg acggcaccat cacctacatc 60  
 ggccaactca tccaactcgc caccacctac gacaacac 98

<210> 48  
 <211> 95  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 48  
 gtgttgattt gggcgcggggt ctgctcgtgc acgagcttgc cgaagtcctt cacgtgtggg 60  
 tggaagccgg tgttgtcgta ggtggtggcg agttg 95

<210> 49  
 <211> 100  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 49  
 gacgagaccc gcgcccaa at caacaccgcc taccacgcc tcaagtgggtg caccttcttc 60  
 tccggcgtga tccgcaagga ggagaccatc aagccatggt 100

<210> 50  
 <211> 97  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 50  
 ctgcagtc at tggccgtctg ggggtgccggc ctgatctcc ttgtcgaagt ccacgaggtg 60  
 ggtggagtgg caccatggct tgatggtctc ctcttg 97

<210> 51  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 51  
 gccgccgagg ccatcatccg ccacg 25

<210> 52  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 52  
 ctgcagtcatt tggccgtctg gagtg 25

<210> 53  
 <211> 96  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 53  
 atgtgtcaga atgaagttga agttaatgga tggacttcta tgccagctaa tgctggagct 60  
 atctttggag ataagccatt tattaatgaa ccaaag 96

<210> 54  
 <211> 90  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 54  
 caagagtctt agcaacaact ggatcatcaa atggaaactt aatttcttca atagaaagag 60  
 cctttgggtc attaataaat ggcttatctc 90

<210> 55  
 <211> 93  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 55

gatccagttg ttgctaagac tcttgattat gctaaggctg ttcttcatcc agaaactttt 60  
aatcattcta tgagagttta tcattatgga atg 93

<210> 56

<211> 87

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 56

gggcccaagt aattggagaa agagcagcag cttgttctgg aaattggtgc ttagtaatag 60  
ccattccata atgataaaact ctcatag 87

<210> 57

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 57

ggatccatgt gtcagaatga agttgaag 28

<210> 58

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 58

gggcccaagt aattggagaa agagc 25

<210> 59

<211> 96

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 59  
 gggcccttac ttgtcttctt catgatcttg gaactgctga agagaatctt actgctacta 60  
 gaatgtcttt tgatatttat ggaggaatta aggctc 96

<210> 60  
 <211> 97  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 60  
 catgtctaataaatagcttca-gcagcagctt cagcttgatc aacagtagct ccgaaatcct 60  
 taagaacaga aagagcctta attcctccat aatatc 97

<210> 61  
 <211> 98  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 61  
 gctgctgaag ctattattag acatgaagat atgggagttg atggaactat tacttatatt 60  
 ggacaactta ttcaacttgc tactacttat gataatac 98

<210> 62  
 <211> 98  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 62  
 gcagtattaa tttgagccct agtttcatca tgaacaagtt taccaaaatc cttaacatgt 60  
 ggatgaaatc cagtattatc ataagtagta gcaagttg 98

<210> 63  
 <211> 96  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 63  
 gaaactaggg ctcaaattaa tactgcttat ccaagactta agtgggtgtac attcttttct 60  
 ggagttatta gaaaggaaga aactattaag ccatgg 96

<210> 64  
 <211> 98  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 64  
 gagctcttat tgtccatctg gagttccagc ttcaatttcc ttatcaaaat caacaagatg 60  
 agtagaatga caccatggct taatagtttc ttcctttc 98

<210> 65  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 65  
 gggcccttac ttgtcttctt catg 24

<210> 66  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 66  
 gagctcttat tgtccatctg gagt 24

<210> 67  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 67  
 gtccaacttg cacaggaaag ac 22

<210> 68  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 68  
 catggatgaa atactcctga gc

22

<210> 69  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 69  
 cacgctaagt gccggccgtc cgag

24

<210> 70  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 70  
 tcctaatacga cggcgccacg gctg

24

<210> 71  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 primer

<400> 71  
 ggatcctcgt catttacttt tatcttaatg agc

33

<210> 72  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 72

gaattcacat tataagcttt atattaccaa gg

32

<210> 73

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 73

aagcttaata gcttcaccta tataata

27

<210> 74

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 74

gtcgacggcg tttaacaggc t

21

<210> 75

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 75

gaattccctt cgtcggagaa attcatcgaa g

31

<210> 76

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 76

ggatccctgc aagcattgag gaccag

26